# Proposed OBSIP Shot-File Format for R/V Marcus G. Langseth

This document describes a proposed shot-file format to be used on the R/V Marcus G. Langseth. A shot-file is a critical input to processing OBSIP data to obtain SEG-Y files. During the first year of Langseth operations, a number of formats have been provided by L-DEO technical support. The proposed format is simple, plain text, self-documenting, and extensible.

## A. Sample Shot-File:

```
# mglshotfile v1.0 MGL09-10
# shotnumber date time sourceLat sourceLon shipLat shipLon waterDepth sciTag
001 2009-08-07 12:12:12.22222 40.123456 -70.123456 40.444444 -70.444444 3000.1 CR2-L01
002 2009-08-07 12:12:13.33333 40.654321 -70.654321 40.555555 -70.555555 3010.9 CR2-L01
```

## B. Structure of the Shot-File

The first line must always contain a comment character, file-type identifier, version number, and standard Cruise ID, each separated by white-space.

The second line must always contain a comment character, followed by white-space delimited field names that indicate which values are present in the file, and their order per line.

Lines after the first two will contain shot information as specified. Blank lines are ignored. The comment character is "#", and anything after a comment is ignored, anywhere in the line or file.

The field separator will be one or more "space" characters. No commas, tabs, etc.

Field names are case sensitive.

Anything appearing after the last, documented field name will be ignored.

All lines are terminated by the newline character (\n).

Latitude and longitude values will be checked for valid domain (90 > latitude > -90, 180 >= longitude >= -180). Anything else will be considered invalid. A value of zero means the equator and/or prime meridian.

## C. Fields

This section describes the field names to be used. The intent of the proposed format is that additional fields can be added as capabilities and requirements evolve.

### C.1 Required Fields

| | |
|---|---|
| `shotNumber` | An integer value for shot-number. This value has typically been in the range of 0-999999, though there is no reason an upper limit needs to be specified. Values must be greater than zero. Leading zeros are optional. |
| `date` | The UTC date of the shot, format of YYYY-MM-DD. Leading zeros are required. |
| `time` | The UTC time of the shot, format of HH:MM:SS.SSSS. The number of decimal places for seconds can be as many as appropriate. Leading zeros are required. |
| `sourceLat` | The latitude of the shot source, expressed in decimal degrees, +N, -S. The number of decimal places can be as many as appropriate. Leading zeros are optional. |
| `sourceLon` | The longitude of the shot source, expressed in decimal degrees, +E, -W. The number of decimal places can be as many as appropriate. Leading zeros are optional. |

### C.2 Desired Fields

| | |
|---|---|
| `shipLat` | The latitude of the ship at shot time, expressed in decimal degrees, +N, -S. The number of decimal places can be as many as appropriate. Leading zeros are optional. |
| `shipLon` | The longitude of the ship at shot time, expressed in decimal degrees, +E, -W. The number of decimal places can be as many as appropriate. Leading zeros are optional. |
| `waterDepth` | Water depth beneath the ship at shot time, in meters, positive depth. The value can be integer or float. |

### C.3 Other Possible Fields

| | |
|---|---|
| `sciTag` | A science-supplied identifier, alphanumeric string, no spaces, 16 character limit. For example, “L-1”, “CR2-HESS”, etc. |
| `sourceDepth` | Depth of the sound source, in meters, positive depth, integer or real. |
| `sourceID` | Identifier describing how the shot-file was created. For example, “Spectra”, “Spectra+MatLab”, etc. 16 character string limit, no spaces. |